## CLAIM AMENDMENTS

1. (currently amended) A method for locating a mobile terminal within a mobile communication network comprising at least one base station, the method comprising the steps of:

measuring a set of physical dimensions that identify, according to respective functions, locating coordinates of said mobile terminal, the set of physical dimensions comprising any combination of physical dimensions selected from the group comprising

signal power received by the mobile terminal starting from the base station,

timing advance,

observed time differences, and

time of arrival,

generating, starting from said set of physical dimensions and respective functions, a global locating error function which has a minimum for values of said locating co-ordinates corresponding with the position occupied by said mobile terminal ~~, said global error function being the difference between the dimensions included in said set and zero~~,

seeking the minimum of said error function by varying at least one of said locating co-ordinates, and

locating said mobile terminal in correspondence with the value of said at least one locating co-ordinate corresponding to said minimum.

2. (canceled)

3. (currently amended) The method as claimed in claim 1 [[or 2]] wherein the measuring step comprises the step of:

performing measurements able to identify at least a value of position or distance with determined precision.

4. (canceled)

5. (previously presented) The method as claimed in claim 1 wherein said global error is defined as the mean square error of the dimensions of said set.

6. (currently amended) The method as claimed in ~~any of the previous claims~~ claim 1 wherein said global error function is obtained starting from a plurality of dimensions of said set.

7. (previously presented) The method as claimed in claim 1 wherein said set comprises one single dimension, so that said global error function is generated starting from the single dimension of said set.

8. (currently amended) The method as claimed in claim 1, further comprising the step of:

to seek said minimum, executing an iterative process evaluating said global error function for different values of said at least one location co-ordinate corresponding to successive different points of the space covered by said communication network.

9. (currently amended) The method as claimed in claim 8, further comprising the step of:

interrupting said iterative process when the absolute distance between two successive points is below a determined threshold value.

10. (previously presented) The method as claimed in claim 1 wherein it is applicable in a three-dimensional reference system.

11. (previously presented) A system for locating a mobile terminal within a mobile communication network comprising at least one base station, the system comprising at least a locating module configured to measure a set of physical dimensions that identify according to respective functions location co-ordinates of said mobile terminal, the set of physical dimensions comprising any

combination of physical dimensions selected from the group comprising

signal power received by the mobile terminal starting from the base station,

timing advance,

observed time differences, and

time of arrival,

~~wherein~~ said locating module being configured to:

generate, starting from said set of physical dimensions and respective functions, a global locating error function which allows a minimum for values of said locating co-ordinates corresponding with the position occupied by said mobile terminal ~~, the global error function being the difference between the dimensions included in the set and zero~~,

seek the minimum of said error function varying at least one of said locating co-ordinates, and

locate said mobile terminal in correspondence with the value of said at least one locating co-ordinate corresponding to said minimum.

12. (canceled)

13. (previously presented) The system as claimed in claim 11, further comprising:

measuring devices able to obtain measurements to identify at least a position value of said mobile terminal or distance with a determined precision.

14. (canceled)

15. (previously presented) The system as claimed in claim 11 wherein said global error function is defined as the mean square error of the dimensions of said set.

16. (previously presented) The system as claimed in claim 11 wherein said locating module is configured to obtain said global error function starting from a plurality of dimensions of said set.

17. (currently amended) The system as claimed in claim 11 ~~, 12 or 13~~ wherein said locating module is configured to obtain said global error function starting from ~~said set comprises~~ one single dimension of the set ~~, so that said global error function is generated starting from the single dimension of said set~~.

18. (previously presented) The system as claimed claim 11 wherein to seek said minimum, said locating module is configured to carry out an iterative process for evaluating said global error function for different values of said at least one locating

co-ordinate corresponding to the successive different points of the space covered by said communication network.

19. (previously presented) The system as claimed in claim 18 wherein said locating module is configured to interrupt said iterative process when the absolute distance between two successive points is below a determined threshold value.

20. (previously presented) The system as claimed in claim 11 wherein said error function is able to operate in a three-dimensional reference system.

21. (previously presented) The system as claimed in claim 11, further comprising:

a module to allow the exchange of data between said mobile terminal and said at least one base station to identify at least one dimension of said set.

22. (previously presented) The mobile terminal configured for use in a system as claimed in claim 11 wherein the terminal comprises at least part of said locating module integrated in the mobile terminal itself.

23. (previously presented) A software product able to be loaded directly into a memory of a digital computer associated

with a mobile terminal as claimed in claim 22 and comprising portions of software code able to implement said at least part of said locating module integrated in the mobile terminal itself when said software product is run on said digital computer.

24. (previously presented) A communication network comprising at least a base station and a plurality of mobile terminals, the network comprising a locating system as claimed in claim 11.

25. (currently amended) The communication network as claimed in claim 24, further comprising an interface module for interfacing with an IP network, said interface module being configured in such a way as to allow the transfer of ~~at least one between~~:

an order to locate one of said mobile terminals starting from a source connected to said IP network, and

[[a]] delivery information generated by a source connected to said IP network, directed to said mobile terminals and ~~referred~~ referring to the location of at least one of said mobile terminals.

26. (new) The communication network as claimed in claim 11 wherein the set of physical dimensions includes altitude over mean sea level.

27. (new) The method as claimed in claim 10 wherein the set of physical dimensions includes altitude over mean sea level.